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degree of social and political transformation the machines would force upon us. It marks a notable advance on the usual method of accepting the offer first and railing at the consequences afterward. But we must become far better informed and surer of our own intentions before our dealings with the machines can be characterized by that confidence which marks the bargaining of equals. To attain this we must not merely develop the ability to rise superior, if necessary, to the immediate bribe that is offered us; we must become competent to bargain, as the machines do, with an intelligent eye to our long-run racial and social interests.

These interests are most seriously threatened in the case of labor. The machines tend to confine discretion in industry to the few whom they take into their confidence, while the bulk of labor has largely lost the power to make any constructive contribution to the technique of industry. The job belongs to the machine, and labor feels little responsibility for it. Labor's state of mind and conduct shows the consequences of this, and many laborers appear to alternate between the slave-morality of getting as much as possible and giving as little, and the spasmodic need of exerting power of some sort. Under the circumstances this can only be power to interfere with the orderly progress of industry by strikes or sabotage, since power to improve on the operations laid down by the machines appears to be beyond labor's present reach, either for lack of competence, ambition, or opportunity. Racial equality can never be established so long as the bulk of mankind are in this position of undignified and passive inferiority.

The situation demands social organizations capable of exerting the force of constructive human will enlightened by collective intelligence, *at the point where things are being decided, in the processes of industry itself*, rather than waiting till the decision is made and then, through our "political" machinery, taking belated and purely defensive action.

TRADITIONAL ECONOMIC THEORY—DISCUSSION

IRVING FISHER.—In commenting on the foregoing papers, I will only say that I feel that there is an undue tendency to react against theories of marginal utility because we have expected more of them than they have yielded. Such revulsions of feeling create alternate fashions in economic theory, and fashions should have no place in science. There is a solid basis of truth in the theories of marginal utility which should not be lost but used as foundations on which to build.

FRANK H. KNIGHT.—Considerable courage is doubtless required to say anything in defense of economic theory in any of its familiar aspects after the presentation of these two papers, not to mention those given this afternoon, in which "theory" has been pelted with missiles of every degree of

consistency. Yet the embarrassing fact to me is that I still see significance in our inheritance from the past hundred and fifty years, although I am also in agreement with much of the argument to which we have listened, on its positive side. Much controversy among economists is due to differences in their conceptions of problems and methods of attack, and not to real antagonism in theoretical position. In my opinion a great deal of it rests upon a single confusion, the failure to separate clearly the question of explaining the price system and the competitive organization of industry from the question of criticizing or evaluating it. These functions are most intimately connected and both are within the task of the theorist; but they are not identical and it is a mistake to criticize him because what he says on one of these problems is not directly relevant to the other.

A good illustration is to be found in two articles in the current and preceding issues of our *REVIEW*, in which Professor Fetter criticizes Professor Mitchell's paper presented to the meeting of five years ago, under the heading of a contrast between price economics and welfare economics. It is improbable that Professor Mitchell is less interested in human welfare than is Professor Fetter. The difference is in the two thinkers' conceptions of the meaning and use of scientific method.

In the field of explaining phenomena the critics condemn the theorist for using simplified assumptions, some even going so far as to accuse him of not knowing everything about our economic system and all the details of its workings. Knowledge of facts, even of details, is very good, and the more of it the better. But someone must think out the general problems, too. And since detailed knowledge of any large part of the field is impossible to any one man, it is inevitable that the theorist must see his facts largely through other men's eyes. Division of labor is indispensable. The business man and practical worker must complete and correct the general principles worked out by the theorist in applying them to their own problems. They cannot, however, usurp the theorist's place. Their knowledge of facts though fuller, applies to a limited field and is necessarily onesided. They are in the position of being unable to see the forest for the trees. Moreover, a clear and consistent body of general theory is necessary as a guide to the observation of facts.

It is an oft-told tale but will bear repeating with emphasis until it is more commonly understood, that the general theory of a subject is not supposed to give a realistically complete account of it. The function of theory is to identify, isolate, and trace out to their final consequences the more fundamental tendencies discernible in a complex mass of phenomena. The effects of causes must be investigated separately, and be combined after we know what they are. To ascertain just which causes are at work in any case and to what extent, and to combine their results in a concrete prediction of outcome, is the province of the application of principles, not of the derivation of principles. Moreover, the general principles are always very incomplete. The scientific method has rather narrow limits, especially in dealing with human behavior and social phenomena. A large proportion of the forces which must be taken into account cannot be reduced to general principles. Such problems can never be dealt with by formula or rule of thumb. It is no criticism of general principles that their application must call for a large use of common sense and trained judgment.

One speaker this afternoon (Dr. Wolman) was candid enough to admit

that the critics of the simplified psychology used by economic theorists have made little headway in bringing forth substitute principles. I do not believe they ever will. Their strictures are valid as *limitations* on the familiar reasoning, not as negations. The principles of the established economics are partial statements, but sound as far as they go, and they go about as far as general principles can be carried. If theorists and practical economists are to get together, the latter must be moderate in their demands, accepting the service that theory can render and not expecting the impossible; and on the other hand theorists must be more modest in their pretensions than some of them have sometimes been. General theory is a *first* step, but never a very long step toward the solution of practical problems.

So I see nothing antagonistic to the spirit of the "Euclidian" economics in Professor Clark's proposal of reversing certain of its assumptions. Opposite tendencies may be and often are real and effective in different situations, and even in the same situation. Economists have habitually studied both monopoly and competition, which are opposite tendencies, without any feeling that they were manipulating a paradox. Some of the inverted postulates which he suggests are important and neglected. I think this is especially true of the relation between production and consumption as means and end. In many cases it is far more nearly true that consumption is the means than that it is the end, but it would surely be "advancing backwards" to work out our economics on the assumption that such is always the case. The correct course for general theory is to study both tendencies and leave it to the practitioner to use the results which fit his own problem—or rather perhaps to find the proper combination of the two, for I imagine that the relation between means and end is usually more or less reciprocal, one or the other direction predominating in various degrees.

Professor Parry's attack on the two cornerstones of established theory, utility and productivity, illustrates, I think, in a particularly apt way the confusion between explanation and evaluation. I fully agree with him that utility is misleading as an explanation of economic behavior. The consumer is not in the sort of situation assumed in the theory, and when utility is made over into relative utility in terms of money there is nothing left of it but the fact of pecuniary demand. Utility is not meaningless or unreal, however; it is only irrelevant to some of the purposes for which it has been used. When we come to pass judgment on the workings of the price system, we have to have a theory of utility as a starting point; and when the theory is worked out from this point of view most of the familiar features will be recognized in it. (Personally, I question the usefulness of total utility and the "surplus" even here.) Utility is an ethical category, as indeed is illustrated by the most important conventional application of it, in justifying progressive taxation.

With productivity the situation is in a sense reversed. The mistake, as now generally recognized, was in giving it ethical significance. It tells us nothing as to the income which any member of society *ought* to receive. But it does explain the income which individuals actually get, or tend to get, under the system of private property and free competition. And the theory also shows the manner in which any society, even an ethical Utopia, would have to impute income to productive factors in order to organize production intelligently, however it might distribute that income among producers and non-producers. Progress in theory is to be looked for not from repudiating

the past and starting over, but from reorganizing the results in relation to the problems to which they are relevant and carrying the work forward along similar lines.

CARL E. PARRY.—I welcome this opportunity to speak again because I should like to make a few remarks in more informal fashion than seemed possible in my original paper.

It seems to me that differences of opinion on special subjects like the ones we are discussing arise largely out of a general difference of opinion concerning the kind and degree of specialization appropriate to economists. According to men's differing views on this general question they are disposed to see different meanings in the same situation. Thus I have attended the same sessions of this meeting as Professor Fetter but have been struck by a very different aspect of them. The proposition that they seem to me to illustrate is that we find ourselves able to make headway with a concrete question by bringing to bear upon it the counsel of experts of various kinds. Thus two of the best papers on the bituminous coal situation have not been given by economists at all; one of them has come from a professional geologist and the other from a professional engineer. The discussion of this coal question exemplifies the exact point that I have been trying to make; namely, economists are more effective in advancing human welfare when they enter a conference in the capacity of experts without attempting "to play all the bases themselves."

I have observed that none of the speakers has attempted to defend the principle of marginal utility as an instrument for getting at the reasons for the rise and fall of prices, which signifies that my central attack on this principle was not altogether without foundation.

The only contention which has really disturbed me to the extent of "drawing any blood" is the one advanced by Professor Fisher and apparently endorsed by Dr. Knight, that I make a mistake in repudiating the hypothetical method of approach. There must have been something in my paper that sounded more extreme on this point than I intended it to sound, for I have great respect for the use of this method of approach when used in the right way. The method, as I understand it, is that of "successive approximations," used most effectively so far as I know by Ricardo. Of course, as Professor Fisher says, we must cast typical statements in the form: If A is true then B is true. Now I feel perfectly free to use this method and to employ this form of statement. I can say "if" as well as anybody. Thus *if* foreign governments carry out their present intention to borrow large sums in this country, and *if* large corporations execute pending plans for new financing, then the long-time rate of interest will not fall within the next few months to anything like the extent often predicted. This illustration should show how the hypothetical method is properly employed by economists who embrace the catallactic point of view.

Let me add one discriminating comment on the work of the value theorists. They have certainly rendered a great service in attempting to unify the whole science of economics through the application of their general principle; in so doing they have given us a new vision of the possibility of unification. Their own principle, however, has failed to accomplish the unification largely because it has been so full of antiquated ethics and antiquated psychology. What we now have to do is to attack the task of unification

along somewhat different lines. The value theorists failed to accomplish the end in view, not because they failed to make a study on their own account of everything in any way relating to human welfare, including such matters as ethics and psychology, but because of their failure to see exactly what they were about in their own special line, meanwhile keeping in close touch with the work of modern specialists along other lines. In the days of Adam Smith and Ricardo, for instance, there may have been some excuse for economists inventing their own psychology, but that justification exists no longer. Thus the psychology of psychologists in Ricardo's day was what we now know as phrenology, and perhaps Adam Smith had some excuse for inventing that "propensity to barter or exchange" which has given rise to so much ridicule in modern psychological circles. But in this modern day many of us have no such justification, because we are so situated that we can keep in close touch with colleagues whose particular business it is to keep abreast of modern thought in such fields as those of ethics and psychology. It is along lines of such coöperation that I see our ultimate salvation. Social progress calls for general coöperation among specialists in accord with "the round-table principle" and if the economist is to sit at the table he must know more than anybody else about some special and particular phase of the matter in hand. He must be some sort of expert if he is to sit in with other experts, and my belief is that he can qualify in this way by recognizing his special duty with reference to markets and prices. Growing recognition of this necessity will bring us to discard a number of ideas and methods that are already obsolescent although they have not yet ceased to be cherished by recent tradition.